BKL Annotation details of one docket matching protein

Human SNAI1 Snail 1 (Drosophila) homolog, a zinc-finger transcriptional repressor, represses expression of E-cadherin (CDH1) and aromatase (CYP19), may play a role in carcinoma and melanoma progression by repressing CDH1

Disease

Therapeutic Target:

decreased expression of SNAI1 mRNA may prevent abnormal cell differentiation associated with Carcinoma *2000* (10655587)

Diagnostic Marker:

decreased expression of SNAI1 mRNA may correlate with Breast Neoplasms *2001* (11245431)

increased expression of SNAI1 protein correlates with breast ductal carcinoma associated with Breast Neoplasms *2002* (12082640)

increased expression of SNAI1 protein correlates with breast ductal carcinoma *2002* (12082640)

increased expression of SNAI1 mRNA may correlate with increased negative regulation of transcription from Pol II promoter associated with Melanoma *2001* (11323412)

increased expression of SNAI1 mRNA may correlate with malignant form of Melanoma *2001* (11323412)

Negative Correlation:

SNAI1 gene does not correlate with Craniosynostoses *1999* (10585766) *1999* (10543399)

Phenotype

Title line phrases

Membership:

contains an N-terminal SNAG domain *2003* (12579345)

member of the SNAG zinc finger protein subfamily of zinc finger proteins *2003* (12579345)

Biological Process/Role:

represses expression of E-cadherin (CDH1) *2000* (10655587)

represses expression of aromatase (CYP19) *2001* (11245431)

Role in Disease:

involved in tumor progression *2000* (10655587)

upregulated in melanoma cells *2001* (11323412)

expression inversely correlates with the grade of differentiation of breast carcinoma *2002* (12082640)

downregulated in breast cancer cell lines *2001* (11245431)

Synonyms

SNA
SLUGH2
SNAH
dJ710H13.1

Cognate

Mouse Snai1 *

members Rat Snail

GO

GO ontology: transcriptional repressor activity *Experimental (E) 2001* (11245431)
GO ontology: specific transcriptional repressor activity *Experimental (E) 2000* (10655587)
GO ontology: specific transcriptional repressor activity *Experimental (E) 2000* (10655586)
GO ontology: DNA binding *Experimental (E) 2001* (11245431)
GO ontology: cartilage condensation *Unspecified Evidence (?) 1992* (1295727)
GO ontology: neurogenesis *Unspecified Evidence (?) 1992* (1295727)
GO ontology: negative regulation of transcription from Pol II promoter *Experimental (E) 2001* (11245431)
GO ontology: negative regulation of transcription from Pol II promoter *Experimental (E) 2000* (10655587)
GO ontology: mesoderm cell fate determination *Unspecified Evidence (?) 1992* (1295727)
GO ontology: mesoderm cell fate determination *Unspecified Evidence (?) 1992* (1483390)

Expression

Body: mammary gland/breast * Cell types: fibroblasts * Cell origin: cell line * Techniques: rt-PCR *Experimental (E) 2001* (11245431)
Body: lung * developmental stage: adult * Techniques: Northern analysis *Experimental (E) 1999* (10585766)
Body: liver * developmental stage: adult * Techniques: Northern analysis *Experimental (E) 1999* (10585766)
Body: mammary gland/breast * Tumors: tumor * Cell origin: cell line * Regulation: downregulated * Techniques: rt-PCR *Experimental (E) 2001* (11245431)
Body: skeletal muscle * developmental stage: adult * Techniques: Northern analysis *Experimental (E) 1999* (10585766)
Body: placenta * Techniques: Northern analysis *Experimental (E) 1999* (10585766)
Cell origin: cell line * Techniques: in situ hybridization * Tumors: melanoma *Experimental (E) 2000* (10655586)
Cell origin: cell line * Techniques: Northern analysis * Tumors: tumor *Experimental (E) 2000* (10655587)
Cell origin: cell line * Cell types: fibroblasts * Techniques: Northern analysis *Experimental (E) 2000* (10655587)
Body: brain * developmental stage: adult * Techniques: Northern analysis *Experimental (E) 1999* (10585766)
Body: heart * developmental stage: adult * Techniques: Northern analysis *Experimental (E) 1999* (10585766)
Tumors: carcinoma * Cell origin: cell line * Techniques: in situ hybridization * Body: mammary gland/breast *Experimental (E) 2000* (10655586)
Cell origin: cell line * Tumors: melanoma * Techniques: rt-PCR *Experimental (E) 2000* (10655586)

Tumors: carcinoma * Cell origin: cell line * Body: mammary gland/breast * Techniques: rt-PCR *Experimental (E) 2000* (10655586)
Cell types: fibroblasts * Cell origin: primary cells in culture * Techniques: rt-PCR * Body: skin *Experimental (E) 2001* (11323412)
Cell types: melanocytes * Degree: not * Cell origin: primary cells in culture * Techniques: rt-PCR *Experimental (E) 2001* (11323412)
Cell origin: cell line * Tumors: melanoma * Techniques: rt-PCR * Regulation: upregulated *Experimental (E) 2001* (11323412)
Body: kidney * developmental stage: embryo-fetus * Techniques: Northern analysis *Experimental (E) 1999* (10543399)
developmental stage: embryo-fetus * Techniques: Northern analysis * Misc. Organ/Cell Type: several tissues *Experimental (E) 1999* (10543399)
Body: mammary gland/breast * Cell types: epithelium/epithelial cells * Cell origin: cell line * Techniques: rt-PCR *Experimental (E) 2001* (11245431)

References

Correlation of Snail expression with histological grade and lymph node status in breast carcinomas. BLANCO, MJ; MORENO-BUENO, G; SARRIO, D; LOCASCIO, A; CANO, A; PALACIOS, J; NIETO, MA // CSIC & Ctr Nacl Invest Oncol & Univ Autonoma Madrid: Oncogene 2002 May 9;21(20):3241-6. (12082640)

Cloning and developmental expression of Sna, a murine homologue of the Drosophila snail gene. NIETO, MA; BENNETT, MF; SARGENT, MG; WILKINSON, DG // NATL INST MED RES: Development 1992 Sep;116(1):227-37 (1483390)

Isolation of Sna, a mouse gene homologous to the Drosophila genes snail and escargot: its expression pattern suggests multiple roles during postimplantation development [published erratum appears in Development 1993 Mar;117(3):preceding table of contents] SMITH, DE; DELAMO, FF; GRIDLEY, T // ROCHE RES CTR: Development 1992 Dec;116(4):1033-9 (1295727)

Characterisation of the human snail (SNAI1) gene and exclusion as a major disease gene in craniosynostosis. TWIGG, SRF; WILKIE, AOM // John Radcliffe Hosp: Hum Genet 1999 Oct;105(4):320-6 (10543399)

Genomic organization, expression, and chromosome location of the human SNAIL gene (SNAI1) and a related processed pseudogene (SNAI1P). PAZNEKAS, WA; OKAJIMA, K; SCHERTZER, M; WOOD, S; JABS, EW // Johns Hopkins Hosp & Johns Hopkins Univ & Univ British Columbia: Genomics 1999 Nov 15;62(1):42-9 (10585766)

Down-regulation of promoter 1.3 activity of the human aromatase gene in breast tissue by zinc-finger protein, snail (SnaH). OKUBO, T; TRUONG, TK; YU, B;

ITOH, T; ZHAO, J; GRUBE, B; ZHOU, DJ; CHEN, S // City Hope Natl Med Ctr: Cancer Res 2001 Feb 15;61(4):1338-46. (11245431)

Loss of E-cadherin expression in melanoma cells involves up-regulation of the transcriptional repressor Snail. POSER, I; DOMINGUEZ, D; DE HERREROS, AG; VARNAI, A; BUETTNER, R; BOSSERHOFF, AK // Rhein Westfal TH Aachen & Univ Pompeu Fabra: J Biol Chem 2001 Jul 6;276(27):24661-6. (11323412)

The transcription factor snail controls epithelial-mesenchymal transitions by repressing E-cadherin expression. CANO, A; PEREZ-MORENO, MA; RODRIGO, I; LOCASCIO, A; BLANCO, MJ; DEL BARRIO, MG; PORTILLO, F; NIETO, MA // CSIC & Univ Autonoma Madrid: Nat Cell Biol 2000 Feb;2(2):76-83. (10655586)

The transcription factor snail is a repressor of E-cadherin gene expression in epithelial tumour cells. BATLLE, E; SANCHO, E; FRANCI, C; DOMINGUEZ, D; MONFAR, M; BAULIDA, J; DE HERREROS, AG // Univ Pompeu Fabra: Nat Cell Biol 2000 Feb;2(2):84-9. (10655587)

Identification and characterization of human SNAIL3 (SNAI3) gene in silico. KATOH, M; KATOH, M // M&M Med BioInformat & Natl Canc Ctr: Int J Mol Med 2003 Mar;11(3):383-8. (12579345)

Uncurated References

Identification and analysis of two snail genes in the pufferfish (Fugu rubripes) and mapping of human SNA to 20q SMITH, S; METCALFE, JA; ELGAR, G // Open Univ & UK Human Genome Mapping Project: 2000; GENE 247(1-2) p.119-128 (ISI link)

Differentiation elicits negative regulation of human beta-galactoside alpha 2,6-sialyltransferase at the mRNA level in the HL-60 cell line TANIGUCHI, A; HIGAI, K; HASEGAWA, Y; UTSUMI, K; MATSUMOTO, K // Toho Univ: 1998; FEBS LETTERS 441(2) p.191-194 (ISI link)

Conserved and divergent roles for members of the Snail family of transcription factors in the chick and mouse embryo SEFTON, M; SANCHEZ, S; NIETO, MA // CSIC: 1998; DEVELOPMENT 125(16) p.3111-3121 (ISI link)

Interaction of a Swi3 homolog with Sth1 provides evidence for a Swi/Snf-related complex with an essential function in Saccharomyces cerevisiae TREICH, I; CARLSON, M // COLUMBIA UNIV: 1997; MOLECULAR AND CELLULAR BIOLOGY 17(4) p.1768-1775 (ISI link)

Drosophila CBP is required for dorsal-dependent twist gene expression AKIMARU, H; HOU, DX; ISHII, S // RIKEN: 1997; NATURE GENETICS 17(2) p.211-214 (ISI link)

Human colon-cancer cell-lines permanently expressing alpha-2,6-sialylated sugar chains by transfection with rat beta-galactoside alpha-2,6 sialyltransferase cdna DALLOLIO, F; CHIRICOLO, M; LOLLINI, P; LAU, JTY // ROSWELL PK CANC INST & UNIV BOLOGNA: 1995; BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS 211(2) p.554-561 (ISI link)

The expression of a zebrafish gene homologous to drosophila-snail suggests a conserved function in invertebrate and vertebrate gastrulation HAMMERSCHMIDT, M; NUSSLEINVOLHARD, C // MAX PLANCK INST ENTWICKLUNGSBIOL: 1993; DEVELOPMENT 119(4) p.1107-1118 (ISI link)

Regulation of aromatase expression in human ovarian surface epithelial cells OKUBO, T; MOK, SC; CHEN, S // City Hope Natl Med Ctr & Harvard Univ: 2000; JOURNAL OF CLINICAL ENDOCRINOLOGY AND METABOLISM 85(12) p.4889-4899 (ISI link)

Protein synthesis-dependent and -independent regulation of hippocampal synapses by brain-derived neurotrophic factor TARTAGLIA, N; DU, J; TYLER, WJ; NEALE, E; POZZO-MILLER, L; LU, B // Howard Hughes Med Inst Natl Inst Hlth Res Scholar & NICHHD & Univ Alabama: 2001; JOURNAL OF BIOLOGICAL CHEMISTRY 276(40) p.37585-37593 (ISI link)

The mouse snail gene encodes a key regulator of the epithelial-mesenchymal transition CARVER, EA; JIANG, RL; LAN, Y; ORAM, KF; GRIDLEY, T // Jackson Lab: 2001; MOLECULAR AND CELLULAR BIOLOGY 21(23) p.8184-8188 (ISI link)

Analyses of the extent of shared synteny and conserved gene orders between the genome of Fugu rubripes and human 20q SMITH, SF; SNELL, P; GRUETZNER, F; BENCH, AJ; HAAF, T; METCALFE, JA; GREEN, AR; ELGAR, G // Max Planck Inst Mol Genet & Open Univ & United Kingdom Human Genome Mapping Project Resou & Univ Cambridge: 2002; GENOME RESEARCH 12(5) p.776-784 (ISI link)

Increased invasion and matrix metalloproteinase-2 expression by Snail-induced mesenchymal transition in squamous cell carcinomas YOKOYAMA, K; KAMATA, N; FUJIMOTO, R; TSUTSUMI, S; TOMONARI, M; TAKI, M; HOSOKAWA, H; NAGAYAMA, M // Univ Tokushima: 2003; INTERNATIONAL JOURNAL OF ONCOLOGY 22(4) p.891-898 (ISI link)

Transcriptional regulation of aromatase expression in human breast tissue CHEN, S; ITOH, T; WU, KB; ZHOU, DJ; YANG, C // City Hope Natl Med Ctr: 2002; JOURNAL OF STEROID BIOCHEMISTRY AND MOLECULAR BIOLOGY 83(1-5) p.93-99 (ISI link)

Biologic contribution of P1 promoter-mediated expression of ST6Gal I

sialyltransferase APPENHEIMER, MM; HUANG, RY; CHANDRASEKARAN, EV; DALZIEL, M; HU, YP; SOLOWAY, PD; WUENSCH, SA; MATTA, KL; LAU, JTY // Roswell Pk Canc Inst: 2003; GLYCOBIOLOGY 13(8) p.591-600 (ISI link)

Hypoxia attenuates the expression of E-cadherin via up-regulation of SNAIL in ovarian carcinoma cells IMAI, T; HORIUCHI, A; WANG, CJ; OKA, K; OHIRA, S; NIKAIDO, T; KONISHI, I // Shinshu Univ: 2003; AMERICAN JOURNAL OF PATHOLOGY 163(4) p.1437-1447 (ISI link)

Mouse Snail family transcription repressors regulate chondrocyte, extracellular matrix, type II collagen, and aggrecan SEKI, K; FUJIMORI, T; SAVAGNER, P; HATA, A; AIKAWA, T; OGATA, N; NABESHIMA, Y; KAECHOONG, L // INSERM 0229 & Kyoto Univ & Massachusetts Gen Hosp & Tufts Univ: 2003; JOURNAL OF BIOLOGICAL CHEMISTRY 278(43) p.41862-41870 (ISI link)

Expression of beta-galactoside alpha 2,6 sialyltransferase and of alpha 2,6-sialylated glycoconjugates in normal human liver, hepatocarcinoma, and cirrhosis DALL'OLIO, F; CHIRICOLO, M; D'ERRICO, A; GRUPPIONI, E; ALTIMARI, A; FIORENTINO, M; GRIGIONI, WF // Univ Bologna: 2004; GLYCOBIOLOGY 14(1) p.39-49 (ISI link)

Ganglionic action of angiotensin contributes to sympathetic activity in renin-angiotensinogen transgenic mice MA, XY; SIGMUND, CD; HINGTGEN, SD; TIAN, X; DAVISSON, RL; ABBOUD, FM; CHAPLEAU, MW // Univ Iowa & Vet Affairs Med Ctr: 2004; HYPERTENSION 43(2) p.312-316 (ISI link)

Snail and SIP1 increase cancer invasion by upregulating MMP family in hepatocellular carcinoma cells MIYOSHI, A; KITAJIMA, Y; SUMI, K; SATO, K; HAGIWARA, A; KOGA, Y; MIYAZAKI, K // Saga Med Sch: 2004; BRITISH JOURNAL OF CANCER 90(6) p.1265-1273 (ISI link)